

A.10 California Black Rail (*Laterallus jamaicensis coturniculus*)

A.10.1 Legal Status

The California black rail (*Laterallus jamaicensis coturniculus*) is listed as a threatened species under the California Endangered Species Act (CESA). It was listed by the California Fish and Game Commission in 1971. It is also designated as a Fully Protected species in California.

Black rail has no federal regulatory status; however, it is on the U.S. Fish and Wildlife Service (USFWS) Region 1 list of Birds of Conservation Concern (BCC). BCC species are those that the USFWS considers potential candidates for federal listing.

A.10.2 Species Distribution and Status

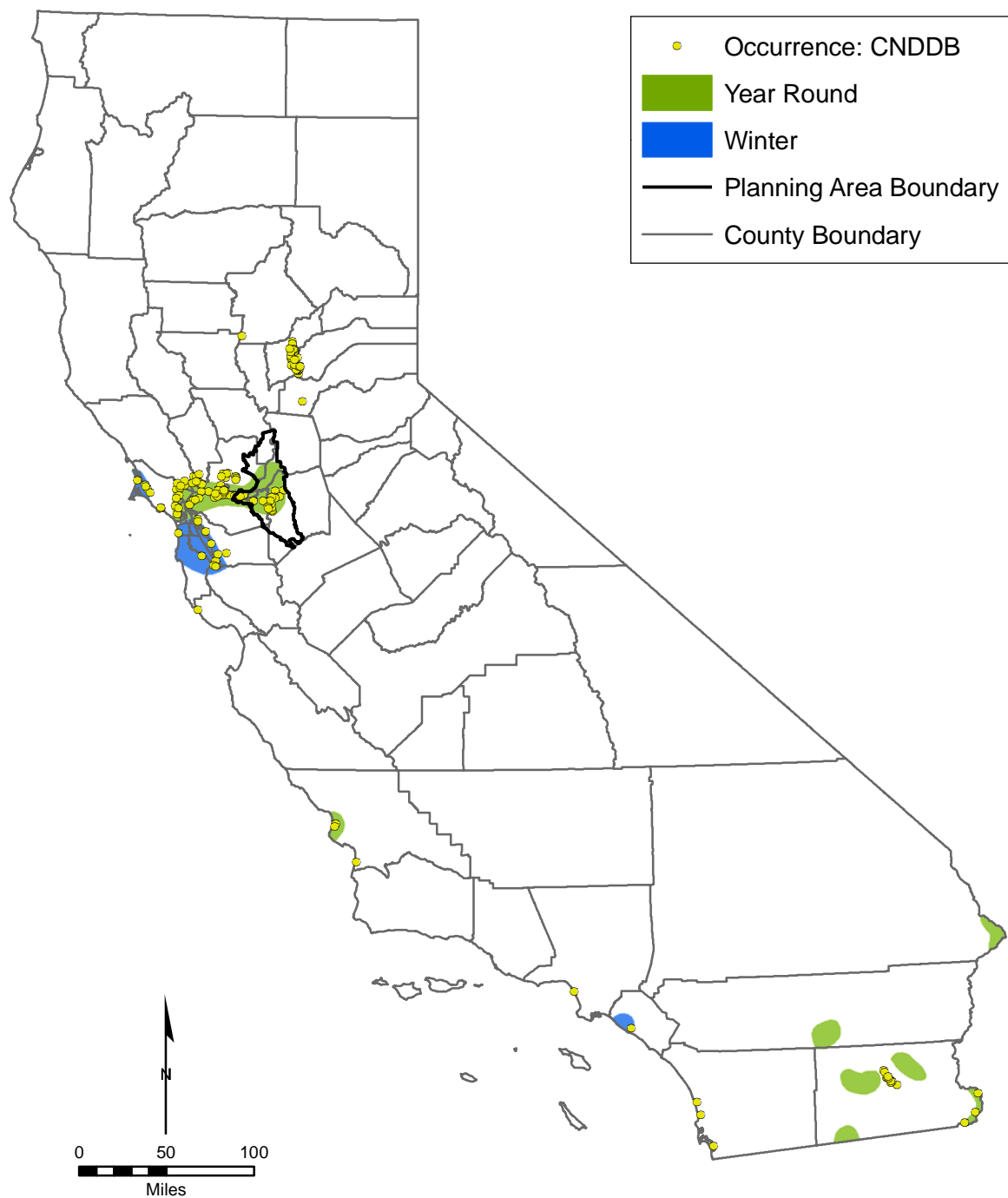
Range and Status

The California black rail is one of two subspecies of black rail that inhabit North America. The range of the California black rail extends throughout portions of California and Arizona. The “Eastern” black rail (*Laterallus jamaicensis jamaicensis*) is found along the eastern seaboard, along the Gulf Coast, and rarely at inland sites in the Midwest (Eddleman et al. 1994).

The historical range of the California black rail extended from the San Francisco Bay, throughout the Sacramento-San Joaquin Delta, along the coast to northern Baja California, other Southern California locales such as the Salton Sea, and along the lower Colorado River. Breeding records existed early in the century of black rail populations existing on coastal marshes in San Diego, Los Angeles, and Santa Barbara Counties. Loss of tidal marsh habitat has extirpated populations from much of its coastal range, particularly in Southern California and much of the San Francisco Bay since the 1950s (Manolis 1978, Garrett and Dunn 1981 as cited in DWR 2001).

Figure A.10.1 illustrates documented occurrences of California black rail in California. The species persists in remaining tidal marshes in the northern San Francisco Bay estuary, Tomales Bay, Bolinas Lagoon, Sacramento-San Joaquin Delta, Morro Bay, the Salton Sea, and the lower Colorado River (Manolis 1978, Evens et al. 1991, Eddleman et al. 1994). Several small, isolated populations also still exist in southeastern California and western Arizona (Evens et al. 1991). The species has also been found more recently at several inland freshwater sites in the Sierra Nevada foothills in Butte, Yuba, and Nevada Counties (Tecklin 1999, Aigner et al. 1995), and most recently in Clover Valley (City of Rocklin) in southern Placer County (The California Black Rail Project 2006). Additional detections have been made recently at the Cosumnes River Preserve in South Sacramento County and Bidwell Park in Chico, Butte County (Central Valley Bird Club Site Guides). Additional recent unconfirmed sightings from rice fields in the Butte Sink and Sutter County suggest that there may be down slope movement from the foothill breeding population.

Declines in populations of the black rail in California are a result of habitat loss and degradation along with an increase in exotic predators such as black rats and red fox (Evens et al. 1991). However, because there were no estimates of historical population levels, the extent of population declines is not fully understood. Evens et al. (1991) examined relative abundance of rails at various locations within the species’ range and determined that more than 80 percent of



Source: California Department of Fish and Game, WHR, 2006.
California Department of Fish and Game, CNDDB, 2008.

Figure A.10.1. California Black Rail Range and Recorded Occurrences

1 the remaining population is confined to the northern reaches of the San Francisco Bay estuary.
2 They also determined that the species was subject to continuing and ongoing population decline
3 due to habitat loss and/or degradation.

4 Until 1994, the black rail was unknown from the Sacramento Valley except for a single winter
5 record at the California Department of Fish and Game's (DFG) Gray Lodge Wildlife Area in
6 Butte County. In 1994, a population of the rail was found occupying a freshwater marsh at the
7 University of California's Sierra Field Station in Yuba County (Aigner et al. 1995). Further
8 examination revealed that the species could be breeding at four separate freshwater marsh ponds
9 within approximately 3.7 miles of each other. As a result, the DFG provided funding for a more
10 regional survey effort that resulted in additional occurrences in Butte, Yuba, and Nevada
11 Counties (Tecklin 1999). Since then, the University of California has continued with a study, the
12 California Black Rail Study Project, that continues to locate additional subpopulations in their
13 Sierra Nevada foothill study area and that is examining how each of these isolated
14 subpopulations are functioning as a metapopulation.

15 As of 2005, this ongoing study included 168 wetland sites in their sample, with 54 percent of
16 these occupied by black rails (The California Black Rail Project 2005). These populations, and
17 presumably others that remain undetected in the region, are considered to be year-round
18 residents. Given the geographic extent of this metapopulation and the consistently high
19 occupancy rate detected over the last five years, it is likely that additional subpopulations occur
20 elsewhere in the Sacramento Valley and Sierra Nevada foothills.

21 ***Distribution and Status in the Planning Area***

22 Within the San Francisco Bay and Sacramento-San Joaquin River Delta region, California black
23 rail populations are restricted primarily to the remaining tidal marshlands of the northern San
24 Francisco Bay estuary, and the vicinity of Suisun and Napa marshes (A.10.2). In Suisun Marsh,
25 a high abundance of black rails have been found at east Mallard Island and moderate abundances
26 at South Joice Island, Pacheco Creek, East Peyton Slough, Cutoff Island, and Southampton Bay.
27 It is possible that a small population occurs in the vicinity of Little Honker Bay and on the north
28 shore of Nurse Slough. In moderate abundances, black rails were found in the northern reaches
29 of Suisun Bay in undiked marshes along the northern bank of Cutoff Slough from Beldonis
30 Landing west to Suisun Slough.

31 Surveys conducted by DFG in the early 1990's found small numbers of black rails at several
32 locations in the Central Delta, including White, Little Potato, Disappointment, and Whiskey
33 Sloughs; mid-Channel Islands in Middle and San Joaquin Rivers; Holland and Palm Tracts; and
34 Mildred, Bacon Island, and Mandeville Islands (CNDDDB 2008).

35 The National Audubon Society's Important Bird Areas Report for the Sacramento-San Joaquin
36 Delta reports that California black rail occurs on most in-stream islands greater than 15 acres that
37 support marsh vegetation elevated above the high tide and wave line (National Audubon Society
38 2008).

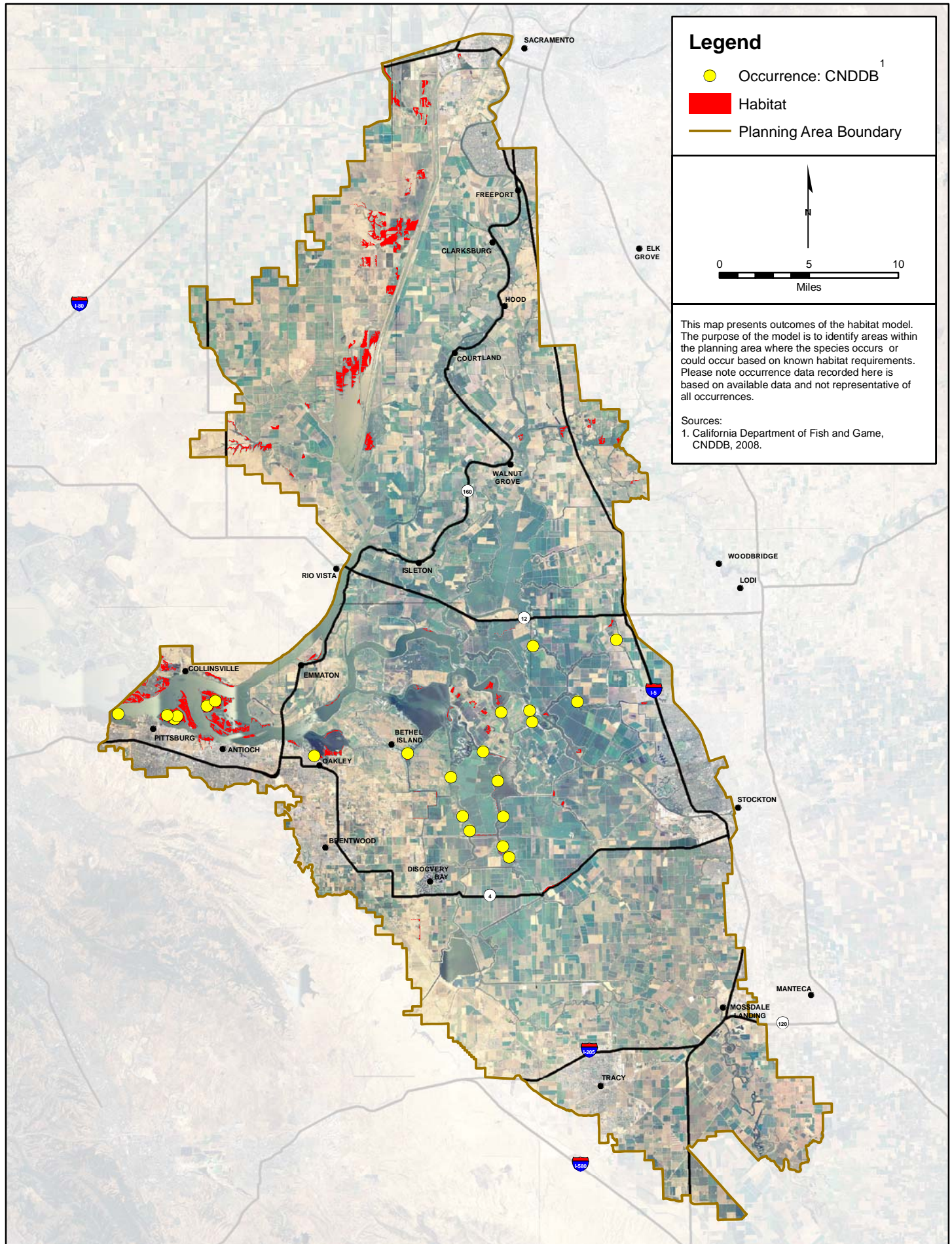


Figure A.10.2. California Black Rail Habitat Model and Recorded Occurrences

Larger concentrations of black rail occur in the western portion of the BDCP Planning Area in the vicinity of Little Honker Bay and Kimble Island, and smaller concentrations on small in-channel islands, and other wetlands within the Central Delta between State Route 12 and State Route 4 (Figure A.10.2). Overall, habitat availability is restricted to remnant wetland sites that are generally unavailable for agricultural uses. Insufficient data have been collected to estimate black rail populations within the Planning Area; however, the small populations found in the Central Delta portion of the Planning Area likely represent a relatively small proportion of the San Francisco Bay/Sacramento-San Joaquin River Delta region. However, these small populations that persist east of the Suisun Marsh are important relative to the overall range and dispersal capabilities of the species.

A.10.3 Habitat Requirements and Special Conditions

California black rails inhabit tidal saltwater and brackish marshes, and freshwater marshes (Grinnell and Miller 1944, Manolis 1978). A highly secretive and rarely observed bird, there appears to be a preference in coastal areas for tidal salt marshes dominated by dense pickleweed (*Salicornia* spp.) with an open structure below. This provides a dense canopy for protective cover while providing nesting habitat and accessibility below the canopy (Evens and Page 1983). Rails are susceptible to predation by herons, egrets, Northern Harriers, short-eared owls, and several mammalian predators. A dense canopy that provides optimal cover is essential for survival.

Black rails tend to be associated with areas where *Scirpus* and *Salicornia* border each other. Evens et al. (1991) found rails where there was a mosaic of *Juncus* (40 percent), *Scirpus* (30 percent), *Triglochin* (10 percent), *Grindelia* (<10 percent), *Distichlis* (<10 percent), and *Typha* (<10 percent). In Suisun Marsh, presence of black rails occurs in conjunction with a pickleweed-alkali heath-American bulrush plant association in the high marsh zone. Escape cover is critical to these birds. Rail nests consist of loosely-made, deep cups either at ground level or slightly elevated. Nests are concealed in dense marsh vegetation near the upper limits of tidal flooding (DWR 2001).

Away from coastal estuaries and salt marshes, black rails are restricted to breeding in freshwater marshes with stands of tule, cattail, bulrush, and sedge (*Carex* spp.) (Eddleman et al. 1994). These sites are very shallow (usually less than 3 cm), but require a perennial water source. A relatively narrow range of conditions is required for occupancy and successful breeding. Water depth is an important parameter for successful nest sites as rising water levels can prevent nesting or flood nests and reduce access to foraging habitat (Eddleman et al. 1994). Too little water will lead to abandonment of the site until the water source is reestablished. Primary factors determining their presence are annual fluctuation in water levels and shallow water depth (<3 cm) (Eddleman et al. 1994, Rosenberg et al. 1991, Conway et al. 2002). There is no information on minimum patch size for the California black rail in the Central Valley and Delta Region, but in the foothills of the central Sierra Nevada rails are in marshes ranging from 0.5 acre to 25 acres in size, with 32 percent of occupied sites in wetlands less than 0.75 acre (Tecklin 1999). The discovery of these Sierra Nevada populations suggest that the species is able to colonize isolated habitat patches (Aigner et al. 1995, Trulio and Evens 2000).

Black rails occur in marshland only, a habitat mostly destroyed or modified in the western United States since the mid-1800s (Atwater et al. 1979, Zedler 1982, Josselyn 1983, Nichols et al. 1986 as cited in DWR 2001). Populations and numbers have and will continue to decline as loss and alteration of habitat continues. Currently, the species is confined to mostly pristine

remnants of historical tidal marshlands, mainly along the large tributaries and shoreline of northern San Pablo Bay, along the Carquinez Straight, and throughout parts of Suisun Bay (Evens et al. 1991). The marshes of San Pablo and Suisun Bays are important in that they are the last large refuge areas for a viable population. There is no evidence that black rails recolonize restored marshes for breeding (Evens et al. 1989).

A.10.4 Life History

Description. The California black rail is a small (12 to 15 cm), secretive, marsh-associated species (Eddleman et al. 1994). They are black to gray in color with a small black bill, sides and back speckled with white, and a nape of deep chestnut brown (DFG 1999). Difficult to observe, rails are usually identified by their call.

Seasonal Patterns. Very little information is available on seasonal patterns, timing of reproduction, dispersal, or other activities. The breeding season begins as early as February with pair formation and extends through approximately early-to-mid June. Egg laying peaks around May 1 (Eddleman et al. 1994). The species is generally known as a medium-distance migrant that winters in Mexico and Central America; however, recently discovered inland populations in California are thought to be year-round residents. At these locations, seasonal movements including juvenile dispersal and adult relocation to other wetland breeding sites occur each year sometime during the non-breeding season between approximately August and February (Tecklin 1999).

Reproduction. Black rails are monogamous birds. They build cup nests with a woven canopy in dead or new emergent vegetation over shallow water less than 3 cm in depth (Eddleman et al. 1994). They initiate egg laying within a few days after nest construction is complete. Rails in California usually lay one single brood with an average clutch size of 6 eggs (range equals 3 to 8) (Eddleman et al. 1994). The incubation period ranges from 17 to 20 days and both adults apparently incubate the eggs (Flores and Eddleman 1993); however, there is very limited data. After hatching, the semi-precocial young leave the nest within a day, but at least one parent continues to brood the young for several additional days (Eddleman et al. 1994). There is limited information on length of brooding period, timing of fledging, parental care, or reproductive success.

Home Range/Territory Size. There is no information available on home range or territory size of black rails.

Foraging Behavior and Diet. Very little information is available on the foraging behavior of the black rail. The species is assumed to be an opportunistic daytime feeder that forages exclusively within the wetland habitat, presumably on or near the ground at the edges of emergent vegetation. The diet consists of insects, small mollusks, amphipods, and other invertebrates, and seeds from bulrushes (*Scirpus* spp.) and cattails (*Typha* spp.) (Eddleman et al. 1994).

A.10.5 Threats and Stressors

Throughout its range, the primary threat to California black rail is the loss and fragmentation of habitat from urbanization, flood control projects, agricultural practices, and hydrologic changes that affect water regimes. The most significant historical threat was the draining of tidal marshes, which may be responsible for over 90 percent the population declines of this species, and which is still occurring in some areas, albeit at a slower rate.

At inland sites, agricultural practices, livestock grazing, and urbanization may threaten individual subpopulations. Use of pesticides, including those used for mosquito control programs may also have unintended consequences for black rails. These isolated subpopulations are also susceptible to metapopulation dynamics and stochastic variables (Evens et al. 1991). Other potential threats include increased predation by domestic cats and by native predators as a result of hydrologic and vegetation changes that increase susceptibility of predation; pollution and its affect on freshwater marshes; and collision with automobiles and utility lines.

Significant data gaps relating to many aspects of the ecology of the black rail exist. Data gaps include minimum patch size for successful breeding colonies, parameters of population sinks, sources of mortality, site fidelity and movement in winter, as well as winter diet and foraging ecology.

A.10.6 Relevant Conservation Efforts

The California black rail is a covered species in several regional habitat conservation plans/natural communities conservation plans, including those prepared for Yolo, San Joaquin and Butte Counties. Several management plans have outlined threats to California black rails and provided recommendations for conservation (Trulio and Evens 2000). Recommendations focus primarily on protection of high-quality habitats. However, few actual habitat protection or species conservation efforts specific to the California black rail have been undertaken to date.

The CALFED Bay-Delta Ecosystem Restoration Program Plan's Multi-Species Conservation Strategy (MSCS) designates the California black rail as "Contribute to Recovery" (CALFED Bay-Delta Program 2000). This means that CALFED will undertake actions under its control and within its scope that are necessary to recover the species. Recovery is equivalent to the requirements of delisting a species under federal and State ESAs.

A.10.7 Species Habitat Suitability Model

Habitat: In the planning area, California black rail may be found in remaining patches of tidal freshwater emergent wetland found along the perimeter of sloughs and on in-channel islands of larger watercourses in the Central Delta (Figure A.10.2) (National Audubon Society 2008, Gifford pers. comm.). These are remnant wetland sites that are generally unavailable for agricultural uses. Primary habitat for this species in the San Francisco Bay estuary including Suisun and Napa Marshes is *Salicornia*-dominated tidal marshlands (Trulio and Evens 2000, Spautz and Nur 2002). However, the remaining patches of this habitat type within the planning area west of Sherman Island are considered too small and fragmented to support this species and are thus excluded from this model.

Potentially suitable habitat within the planning area includes all *Scirpus* and *Typha*-dominated Tidal Freshwater Emergent Wetland in patches greater than 15 acres.

Assumptions: There is limited information available on minimum habitat patch size for black rail in the Delta region. Spautz and Nur (2002) determined that larger intact marshes in the San Francisco Bay estuary were required for occupancy. At the other extreme, recently discovered Sierra Nevada foothill populations occur in emergent marsh habitats as small as 0.5 acres (Techlin 1999). However, habitat conditions or requirements in the San Francisco Bay estuary or the Sierra Nevada foothills may not be transferable to the rather unique habitat conditions in the Delta. The California Department of Fish and Game conducted surveys for California black rail in the Central Delta in the early 1990s and found occupancy on in-channel islands greater

than 15 acres that were not subject to agricultural or other disturbances and that supported marsh vegetation elevated above the high tide and wave line (Gifford pers. comm.).

Other important factors that determine occupancy include water depth and a perennial water source. Very shallow water (usually <3 cm) is required. In general, a relatively narrow range of conditions is required for occupancy and successful breeding (Eddleman et al. 1994). For purposes of this model, it is assumed that these conditions are met in all *Scirpus* and *Typha*-dominated tidal freshwater emergent wetlands greater than 15 acres.

A.10.8 Recovery Goals

Recovery goals have not been established for this species.

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8 **Personal Communications**

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10 conversation with Jim Estep on October 22, 2008.